Saturn u. 7 Nov.   ad VIII 6'   197

Gentlemen!

I yesterday received with the liveliest satisfaction the two remaining quarters of your elaborate and beautiful map of the moon's surface together with the treatise accompanying them as also your maps of the surface of Mars. Pray accept my best thanks for this esteemed and valuable present, and at the same time my hearty congratulations on the confection of a work of such very great labour and difficulty as well as importance. The want of such maps has long been felt and regretted.

Had the Missionaries to whom they were intrusted arrived two months later, we should have quitted the Cape. I expect to arrive in England some time in May and it is not impossible that during the Summer I may have the pleasure to thank you in person for this mark of your attention, as I propose visiting Hanover soon after my arrival in England, and if time will permit should be very desirous to come as far as Berlin — if it were only for the sake of saying my respects to yourselves and your admirable Encke.

When last I wrote to you on the receipt of your former maps, I spoke with hesitation above the 6th (2d) Satellite of Saturn. Since that time (in May last) I have had the satisfaction of observing it several times in a most unequivocal manner, and tracing it through several revolutions in its orbit. But the 7th** (1d) eluded all my research. The great Refractor preparing for the Petersburg Observatory will however, I hope, show it.* I have also procured a fine Series of micrometrical measures of all the other satellites in every situation with respect to the primary — the closest and smallest of them being easily observed at its superior and inferior conjunctions. The measures are referred at once to the rings major axis by a peculiar mode of observation which gives such very good and according results that I only regret no having hit upon it before. It is as follows:

F. Lassell [illegible] 3 weitere gemacht 1846 Cap. p. 428 | ** [illegible] und Struve [illegible] alle [illegible] John H. einmal 3 Jan 1836 beob. Cap. p. 419. 424 F | ungew. Cap. p. 427. | * Astr. del Collegio Romano haben 1ten Trab. am 27 Jan 1838 gesehen. Mädler [illegible] Herschel [illegible] p. 255 der 6te [illegible] Lamont 1836 [illegible] Schröter [illegible] am Cap, nach Struve [illegible] VII.776

1

A

x

(S)

a

B

2.

x

(S)

A'

B'

A and B are two very thick parallel wires, distant enough to take in easily between them the planet and Ring. I measure the apparent elongation ~~or the angle a S a~~ of a Satellite x from the line of Ansae or the angle a S a', the planet in first placed between the wires so as in (fig I) to stand symmetrically of which the eye will judge with extreme precision — the graduated division being read off. They are next placed as in fig 2. and it is surprising how very correctly with a little practise this may be done so that the line Sx shall be parallel to the direction of the wires. This being done alternately 3, 5 or 7 times (so as to leave off with the position No I.) — all change of situation with respect to the horizon &c. is eliminated.

The last astronomical novelty of the Southern hemisphere is one of very great interest. The Star η Argus (marked in Bode's Map as η Robur Caroli) has always hitherto been regarded as a Star of the second magnitude or at most as (2.1.) During the form years I have had (it as it were) continually under my eye, by reason of the great nebula which surrounds it, and of which I have been taking most careful drawings — I have always considered it as (2.1) and never had reason to suppose it variable. In Nov. 1837 I saw it as usual. Judge of my surprise to find on the 16.17. December that it had suddenly become a Star of the first magnitude and almost equal to Rigel. — It continued to increase. Rigel is now not to be compared to it, it <u>exceeds Arcturus</u>, and is <u>very nearly equal</u> to α Centauri, being at the moment when I write, the fourth Star in the heavens in order of brightness!

I remain, Gentlemen, Your obliged and faithful Servant

J. F. W. Herschel.

P. S. You will oblige me by communicating the above mentioned fact respecting η Argus to Prof. Schumacher, as perhaps he may think it worth noticing in the Astron. Nachrichten.

P. S. The total eclipse of the moon last year was finely seen here. The whole disk was well seen with the naked eye, intensely <u>red</u> like a glowing coal — all the spots well seen in the telescope — many occultations took place of very minute stars and a faint nebula was traced up <u>almost</u> to the very edge of the disc. — It would have been interesting indeed to have seen a nebula occulted.

Sterne verändern + bloss Grösse (Stärke des Lichts) auch Farbe Sirius